DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Agency for Toxic Substances
and Disease Registry
Atlanta GA 30333

8/12/96
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AUG 12 1996

Mr. Gary J. Anderson
Area Director
Occupational Safety and Health Administration
1600 167th Street
Suite 12
Calumet City, Illinois 60609

Dear Mr. Anderson:

I am writing in response to a letter the Occupational Safety and Health Administration (OSHA) sent to Mr. Ron Steele, 161 E. Grand Association on June 1, 1994. This letter relayed results of Radon-222 (Rn-222) and Rn-220 (thoron) sampling at 161 E. Grand Avenue in Chicago, Illinois, and states that no health problems, based on levels of Rn-220/222, exist within this location.

The Agency for Toxic Substances and Disease Registry (ATSDR) received a request from the U.S. Environmental Protection Agency (EPA) to review and supply comments to your letter. ATSDR has specific public health related activities as defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) — Superfund. Among these is the evaluation of environmental releases of contamination from Superfund sites and how these releases might impact the health of those exposed. ATSDR has reviewed your results and **strongly disagrees** with the findings of OSHA that no health hazard exists at 161 E. Grand Avenue. ATSDR also has notified the National Institute for Occupational Safety and Health (NIOSH), relaying our concerns.

The Grand Avenue site is related to a larger Superfund site in the Chicago area. This site processed thorium-containing ores in West Chicago and Chicago. The thorium contamination and the associated radiological contamination have now been dispersed through several public parks, residential neighborhoods, a municipal sewage plant, a former opera house, and the building located at 161 E. Grand Avenue, to name a few locations.

In 1993, EPA requested ATSDR to accompany them on an inspection the Grand Avenue location, the former opera house, and assist the EPA in sampling the levels of ionizing radiation within the facilities. Besides the radiological sampling, both short term and long term gamma radiation measurements were collected. Based on these gamma radiation measurements, ATSDR determined, and the EPA concurred, that the occupants of 161 E. Grand Avenue were at increased risk from the levels of ionizing radiation within the building.

In contrast to your letter to Mr. Steele, we believe our data and assessments indicate a health hazard does exist. Although the Nuclear Regulatory Commission standards outlined in 10 CFR 20 are for the protection from radiation, two standards are presented in that Code

- occupational workers and a public dose limit. Occupational workers are those who work in a restricted area or an individual whose assigned duties involve exposure to radiation and radioactive material. A restricted area has access limited by the holder of the radioactive materials license to protect individuals from the harmful effects of radiation or whose duties involve exposure to radiation. A member of public, by default is one who does not meet the requirements of an occupational worker. More detailed definitions are codified at 10 CFR 20.1003. Table I of 10 CFR 20 applies to occupational workers; whereas, Table II pertains to members of the public.

In discussions with NIOSH, the 0.1 pCi/L limits expressed in Table II are based on a linear extrapolation to at least a risk of 10^{-4} derived from uranium miner risk estimates. This activity should be interpreted as the amount of Ra-222 and Ra-220 attributable to a point source release that reaches a boundary, such as a fence line around a nuclear facility. In that interpretation, the limit is an amount, above background, directly coming from a contamination source. Therefore, the air measurements OSHA reported should not be compared to the 0.1 pCi/L limit alone (without consideration of background) and that level (0.1 pCi/L) is so low as to be difficult to attain either indoors or outside the building. We recommend that the most prudent procedure would be to rely on gamma measurements as the determination of a public health problem.

The thorium and its associated decay products emit significant levels of gamma radiation such that the gamma component adds to the potential hazard from the radon and thoron components present in the building. ATSDR and EPA measured gamma radiation rates with real time (short term) instruments and, for the long term exposures, with thermoluminescent dosimeters and annualized the readings. In many cases the gamma radiation readings exceed not only the public exposure limit of 100 millirem per year from all pathways (10 CFR 20.1301) but the occupational limit of a declared pregnant worker (500 millirem during the course of pregnancy; 10 CFR 1208) and the 5 rem per year (10 CFR 1201) limit of an occupational worker. Similar occupational limits are codified in 29 CFR 1910.96 of OSHA.

Based on the discussions above, we believe a public health hazard does exist at this location. We request that you reevaluate your decision regarding this location. If you have any additional questions, please contact me at (404) 639-0610.

Sincerely yours,

Robert C. Williams, P.E., DEE
Director
Division of Health Assessment
and Consultation

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